

Notice of Allowability

Application No.

09/530,803

Examiner

Rip A. Lee

Applicant(s)

CROZIER, HERVE

Art Unit

1713

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to November 21, 2005.
2. ☒ The allowed claim(s) is/are 1-5 and 7-15.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

The application has been amended as follows:

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|-------------------|--|
| Claim 1, line 3 | replace "an at" with "a" |
| Claim 1, line 4 | delete "at least 7 °C higher" |
| Claim 1, line 4 | insert "at least 7 °C higher" between "temperature" and "than" |
| Claim 9, line 4 | replace "pyrol" with "pyrrole" |
| Claim 9, line 5 | replace "Phtalocyanine" with "phthalocyanine" |
| Claim 10, line 8 | replace "is" with "has a concentration of" |
| Claim 10, line 9 | delete "said delta max for cross direction shrinkage in" |
| Claim 10, line 10 | replace "is" with "has a delta max for cross direction shrinkage of" |
| Claim 12, line 2 | replace "compound" with "composition" |

Allowable Subject Matter

The following is an examiner's statement of reasons for allowance: Claims 1-5 and 7-15 are allowed over the closest references cited below.

The present invention is drawn to a molded article comprising a polymer composition comprising a propylene nucleated with a polymerized vinyl compound and having a crystallization temperature at least 7 °C higher than that of the corresponding non-nucleated polymer, and a non-white or non-black organic color pigment having a concentration of 2 wt % to 5 wt %, wherein said polymer nucleated with a polymerized vinyl compound comprises a propylene polymer polymerized in the presence of a catalyst modified with a polymer containing vinyl compound units, and wherein said article has a delta max for cross direction shrinkage of less than 0.38 %.

A second aspect of the invention is a process for controlling shrinkage of a molded colored polymer composition comprising modifying a polymerization catalyst with vinyl compounds, reacting said modified catalyst with propylene to produce a nucleated propylene polymer, and blending said nucleated propylene polymer with a non-white or non-black coloring pigment wherein the pigment has a concentration of 2 wt % to 5 wt %, and wherein said molded composition has a delta max for cross direction shrinkage of less than 0.38 %.

Asanuma *et al.* (U.S. 5,278,216) discloses a syndiotactic polypropylene resin composition comprising various nucleating agents such that the difference between the crystallization temperatures of nucleated versus non-nucleated polypropylene is at least 5 °C. Use of high melting point polymers such as poly-3-methylbutene, polyvinyl cyclohexane, polystyrene is contemplated. The examples show a polypropylene resin mixed with 1 ppm of quinacridone nucleating agent exhibits a higher crystallization temperature compared with non-nucleated polypropylene. Thus, Asanuma *et al.* teaches certain organic pigments also display a nucleating effect in propylene compositions. Asanuma *et al.* does not disclose or make obvious the subject matter of the instant claims. First, there is no teaching of use of quinacridone at concentrations of 2-5 wt %. Second, there is no suggestion that combinations of nucleating agent may be used. Third, one of ordinary skill in the art would not have found it obvious to

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achieve a composition that displays a delta max for cross direction shrinkage of less than 0.38 %, a property that reflects the extent of nucleation in the polypropylene resin.

Shiga *et al.* (U.S. 4,551,501) discloses a composition comprising crystalline polypropylene nucleated with a polymer of a vinyl cycloalkane prepared by polymerizing propylene in the presence of a catalyst modified with polymerized vinyl cycloalkane. The difference between the crystallization temperatures of nucleated versus non-nucleated polypropylene is not described; it may be possible that this difference is at least 7 °C, as recited, since the amount of nucleating agent incorporated into the resin lies in the range of 0.05 to 10,000 ppm. Use of carbon black and "other pigments" is contemplated, however, the reference does not indicate how much is to be used such that an article derived from such a pigmented composition exhibits the claimed properties. In light of the fact that pigments also contribute to the nucleation phenomenon in polypropylene, one of ordinary skill in the art would not have found it obvious to arrive at the claimed composition which exhibits a delta max for cross direction shrinkage of less than 0.38 %.

Watanabe *et al.* (U.S. 5,684,099) teaches a propylene homopolymer that exhibits key microstructural properties. The propylene may be used in a composition which contains 0.05 to 0.5 wt % of a nucleating agent selected from dibenzylidenesorbitols, metal phosphates, talc, metal benzoates, polyvinyl cyclohexane and polyvinyl cyclopentane. Use of colorants such as phthalocyanine, quinacridone, isoidonlin, azo pigments, titanium oxide, and carbon black at levels of 0.01-1 wt % is also contemplated. There is no teaching of use of these pigments at concentrations of 2-5 wt %. In light of the fact that the presence pigments also contributes to the nucleation phenomenon in polypropylene, the difference between the claimed pigment concentration range and that described in the prior art is significant. There is no reason to believe that the compositions of Watanabe *et al.* inherently possess the claimed properties, and one of ordinary skill in the art would not have found it obvious to modify the pigment concentration to the extent that the combined nucleation effect of polyvinyl cylcohexane and colorant results in a composition that exhibits a delta max for cross direction shrinkage of less than 0.38 %.

Ohmae *et al.* (U.S. 4,997,872) teaches a resin composition comprising 80-98 pw of a graft modified crystalline polypropylene, 2-20 pw of an ethylene/ α -olefin copolymer, 0.001-1.0 pw of a polymer of vinylcyclohexane, and 0-10 pw of a metal oxide or metal hydroxide (TiO_2 , MgO , CaO , Al_2O_3 , $\text{Mg}(\text{OH})_2$, and $\text{Ca}(\text{OH})_2$). The materials appear to be filler, but they may also be considered inorganic white pigments. The instant claims preclude use of inorganic pigment. The reference also contemplates use of organic pigments such as copper phthalocyanine blue and cadmium yellow, but Ohmae *et al.* does not indicate how much is to be used such that an article derived from such a pigmented composition exhibits the claimed properties. One of ordinary skill in the art would not have found it obvious to arrive at the claimed composition comprising 2-5 wt % of non-black or non-white pigment and which exhibits a delta max for cross direction shrinkage of less than 0.38 %.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

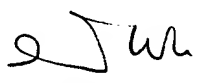
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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rip A. Lee whose telephone number is (571)272-1104. The examiner can be reached on Monday through Friday from 9:00 AM - 5:00 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu, can be reached at (571)272-1114. The fax phone number for the organization where this application or proceeding is assigned is (571)273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <<http://pair-direct.uspto.gov>>. Should you have questions on the access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll free).

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January 18, 2006


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